

STUDY TITLE: Updating MAG-PLAN Gulf of Mexico and Assessing Applicability to New Five-Year Program Areas

REPORT TITLE: MAG-PLAN GOM 2016: Economic Impact Model for the Gulf of Mexico

CONTRACT NUMBER: M14PD00056

SPONSORING OCS REGION: Gulf of Mexico

APPLICABLE PLANNING AREA(S): Gulf-wide

FISCAL YEAR(S) OF PROJECT FUNDING: FY2015; FY2016

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COSTS: FY2015: \$293,392; FY2016: \$16,364, Total Cost: \$309,756

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BACKGROUND: BOEM maintains an OCS Economic Impact Model (EIM) called MAG-PLAN to provide a consistent bureau-wide approach to estimating employment, personal income, and similar economic impacts from OCS activities. MAG-PLAN is a Microsoft® Access®-based, two-stage model that uses OCS-specific “cost functions” to estimate the industry expenditures required (by industry sector and onshore area that the spending is likely to occur) to complete a given activity, such as drilling an exploration well or operating a production facility. The second stage uses general economic multipliers from the commercial economic modeling system IMPLAN to forecast employment, personal income, and other variables resulting from the initial industry expenditures.

OBJECTIVES: The objective of the MAG-PLAN update study is to strengthen and refine the Bureau’s procedures for estimating the onshore economic effects from OCS-related activities, by improving the current MAG-PLAN model.

DESCRIPTION: The offshore oil and gas industry is small relative to the onshore oil and gas activity in the United States. Many sources of data, such as Census Bureau products, do not distinguish between onshore and offshore operations. ERG developed detailed industry sector profiles that incorporated water-borne activities that are characteristic of offshore operations for: geophysical and geological prospecting; subsea installations; floating, production, storage, and

offloading (FPSO) vessels; decommissioning activities (with and without explosives); and operations and maintenance activities for production systems. This step divides the cost (expenditure) associated with an activity (e.g., building and installing a subsea production system) into a set of IMPLAN's 440-industry scheme.

MAG-PLAN then distributes the non-labor spending by industry to onshore regions. ERG developed "bottom up" distributions for oil and gas field manufacturing equipment; oil country tubular goods; umbilicals and subsea equipment; and hulls/topsides for FPSOs as well as refined the "top down" approach for all other industries. ERG identified a root cause for the condition where the onshore distribution sends expenditures to a region where IMPLAN has zero multipliers for that industry/region combination and developed methods to reduce this source of leakage in MAG-PLAN. ERG developed three sets of onshore distributions depending upon the type of lease sale, e.g., Gulf-wide, Western, or Central regions. ERG developed IMPLAN models for newly-defined economic impact areas, generated the multipliers for the stage 2 calculations, and incorporated them in MAG-PLAN.

ERG developed three sets of onshore distributions for labor expenditures associated with offshore oil and gas activities to address the distinguishing characteristic that drilling and production crew members can live at great distances from the work place. That is, household expenditures are likely to occur in regions other than those in which the labor is performed. The International Association of Drilling Contractors (IADC) provided the results of their 2010 survey on the residence of nearly 11,800 workers in the offshore drilling industry; this is the basis of the onshore distributions for labor expenditures associated with drilling operations. The Labor Needs Survey (MMS 2008-050) is the basis for the onshore distribution of household expenditures from production operations and maintenance crews. The third set assumes that people work within commuting distance of where they reside.

SIGNIFICANT CONCLUSIONS: MAG-PLAN GOM 2016 contains updated economic impact area descriptions, IMPLAN 2012 multipliers for the each area, and 2010 data for the drilling crew residences. Industry sector profiles provide a more "offshore-centric" aspect of the industry and onshore distributions for key industries (e.g., steel and umbilical manufacturing) have been built up from plant locations. This will help broader BOEM understand the local and regional consequences of the program as industry activities expand or contract, and will support planning, decision making, and environmental assessments related to the management of mineral resources on the OCS.

STUDY RESULTS: The revised model is populated with activities and expenditures reflecting technological changes that have occurred since the previous version of MAG-PLAN was developed.

STUDY PRODUCT(S): Eastern Research Group, Inc. 2016. MAG-PLAN GOM 2016: Economic Impact Model for the Gulf of Mexico. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study BOEM 2016-072. 129 pp.

REFERENCE: ICF Consulting. 2008. Labor needs survey. Volume I: Technical report. New Orleans (LA): US Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region. (OCS Study MMS 2008-050).